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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/912,876

07/25/2001

Bardia Pezeshki

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7160

21127

7590

10/24/2003

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EXAMINER

MENEFEE, JAMES A

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 10/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/912,876

Applicant(s)

PEZESHKI ET AL.

Examiner

James A. Menefee

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 6,8-12 and 18-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,7,13-17 and 29-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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## DETAILED ACTION

### *Response to Amendment*

In response to applicant's amendment, filed 9/8/03, the specification and claims 1-4, 7, 13-14, 17, and 29-30 are amended. Claims 1-35 are pending.

### *Election/Restrictions*

Claims 6, 8-12, and 18-28 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 9.

### *Drawings*

The drawings were received on 9/8/03. These drawings are acceptable.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pianciola et al. (US 2003/0026301) in view of **any one of** Neuschafer et al. (US 6,078,705, col. 3 lines 8-15), Duveneck et al. (US 5,959,292, col. 2 lines 40-62) or Cirelli et al. (US 5,500,916, col. 1 lines 13-22). Pianciola discloses the claimed invention as follows (see Figs. 3-4):

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Regarding claim 1, Pianciola discloses a tunable laser module comprising a laser 411 operating at a first wavelength, and a wavelength locker (lower branch, 2,4,6,8) coupled to said laser and for tuning the first wavelength to a desired wavelength. It is not disclosed that the wavelength locker is a planar waveguide. Instead, a fiber wavelength locker is disclosed. Each of Neuschafer, Duveneck, and Cirelli teach that it is advantageous to use planar waveguides in place of fiber waveguides. It would have been obvious to one skilled in the art to use a planar waveguide system in place of the fibers of Pianciola due to the easier and more economical fabrication, and the ease of mass production, as taught by any of Neuschafer, Duveneck, or Cirelli.

Regarding claim 2, Pianciola discloses the wavelength locker includes detectors PD1 PD2.

Regarding claim 3, Pianciola discloses the locker generates an error signal based on a difference between the first and desired wavelengths.

Regarding claims 4-5, Pianciola discloses a controller 8 generates a control signal to adjust the wavelength of the laser to the desired wavelength.

Regarding claim 13, Pianciola does not disclose that the wavelength locker and the laser are mounted on a single temperature controlled package. It is well known to mount all of the parts of a laser system on a single temperature controlled package. It would have been obvious to one skilled in the art to mount these parts on a single temperature controlled package so that ambient temperature changes will not affect the output characteristics of the system, thus improving results, as is well known.

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Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pianciola in view of any of Neuschafer, Duveneck, or Cirelli as applied to the above claims, and further in view of Weber (US 6,088,147). Pianciola and either Neuschafer, Duveneck, or Cirelli teach the claimed invention as shown above, but does not disclose that the wavelength locker includes a passive waveguide connected to a Mach-Zehnder interferometer having asymmetric arm lengths. Weber teaches an optical transmission system where an asymmetric Mach-Zehnder interferometer is used to modulate the output of the system. It would have been obvious to one skilled in the art to include such a waveguide asymmetrical Mach-Zehnder interferometer in the wavelength locker because it can improve distortion effects, as taught by Weber.

Claims 14-17 and 29-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pianciola in view of any one of Neuschafer, Duveneck, or Cirelli, further in view of Weber, and further in view of Harpin et al. (US 6,212,323). Pianciola, any of Neuschafer, Duveneck, or Cirelli, and Weber teach the wavelength locker having an asymmetric Mach-Zehnder interferometer as in the rejection of claim 7 above. They do not disclose the following:

Regarding claims 14 and 29-31, it is not taught that there are a plurality of Mach-Zehnder interferometers with different asymmetries. Duplication of parts is evidence of obviousness. Thus, there could be numerous branches coming off of the branch 4 of Pianciola. It would have been obvious to include a Mach-Zehnder interferometer in each branch, for the same reason one skilled in the art would have included a single Mach-Zehnder interferometer, taught by Weber in the rejection of claim 7 above. Harpin teaches a system where a plurality of Mach-Zehnder interferometers having different arm asymmetries is utilized (Fig. 4). Harpin teaches that the arm

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asymmetries lead to interference that can be used for wavelength selection (col. 1 lines 20-25). It would have been obvious to one skilled in the art to use a different arm asymmetry for each branch off of 4 of Pianciola, because different wavelengths are being selected in each branch, and thus a different arm asymmetry would be used to select the different wavelength.

Regarding claims 15 and 32, the Mach-Zehnder interferometers, each having different arm asymmetries, will necessarily have different frequency responses.

Regarding claim 16 and 33, one skilled in the art may leave one of the waveguides free of the Mach-Zehnder interferometer, for example to have a control branch where the effects of the interferometer are not present. This would leave a passive waveguide branch connected to a detector.

Regarding claims 17 and 35, it is not disclosed that the detectors are connected to lookup tables. It is well known in the art that detectors are often connected to lookup tables so that the system may reference the table to see if the detected value compares to the lookup table value. Thus, it would have been obvious to one skilled in the art to include the lookup table connected to the detectors so that the system can reference the lookup table to check that the values being detected correspond to the expected values, as is well known.

Regarding claim 34, it is further not taught that a controller would normalize the outputs from each detector. It is well known that numerous measurements that are going to be compared should be normalized. It would have been obvious to one skilled in the art to normalize the outputs so that they can be compared, and the comparison will be useful.

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***Response to Arguments***

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection. The applicant added limitations that the wavelength locker must be made of a planar waveguide, but this is deemed obvious as shown in the above rejections.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Choquette et al. (US 6,245,412, col. 1 lines 20-54) and Sanghera et al. (US 5,973,824, col. 3 lines 25-40) also teach that planar waveguides may be advantageous over fibers.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Menefee whose telephone number is (703) 605-4367.

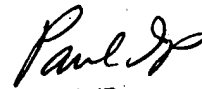
The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



JM  
October 9, 2003



PAUL IP  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800